



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,243	01/23/2004	Takemori Takayama	KOM-0153/INO/DIV 2	4520
23353	7590	02/08/2006	EXAMINER	
RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036			SAVAGE, JASON L	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/762,243

Applicant(s)

TAKAYAMA ET AL.

Examiner

Jason L. Savage

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 1-18-06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 6, 8-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6, 8-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6, 8-10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Takayama'549 et al (US 5,948,549).

Takayama'549 teaches a copper based sintered contact material which is sinter bonded to an iron-base material (col. 1, ln. 7-11). Takayama'549 further teaches the contact may be a CuSn alloy which contains multiple materials capable of forming intermetallics (col. 11, Table 4). Takayama'549 teaches the inclusion of many of the elements from Applicant's claimed group of elements capable of forming intermetallics including Cu, Sn, Mn, Cr, Mo and W (Table 4 and Col. 8, ln. 9-13). Although Takayama'549 does not explicitly recite that the recited materials form intermetallics and it is silent as to the volume % of the contact that intermetallics of the recited materials would occupy, since Takayama'549 teaches the same starting materials in similar amounts as that which is claimed in a similar powder metallurgy method to form the sintered copper contact as that taught by Applicant, one would have expected that the intermetallics of the claimed elements would have inherently formed.

The Patent and Trademark Office can require Applicant to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are

Art Unit: 1775

produced by identical or substantially identical processes; burden of proof is on Applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 U.S.P.Q. 431 (CCPA 1977).

Takayama'549 further exemplifies an embodiment wherein a contact contains elements capable of forming an intermetallic between Sn and one of Mo, W and Mn wherein the total amount intermetallic forming compound is less than 10% by weight (Table 2, No. 9-10 and Table 4, No. 24-25). Although it is not certain that all of the recited elements would form into intermetallics, the samples 9 and 10 in table 2 containing 7 wt% of MoSn (atomic) and 7wt% of WSn could form intermetallics having a maximum of 6.41 vol% of MoSn and 8.26 vol% of WSn respectively. Samples 24 and 25 in Table 4 containing 6 wt% of MnSn(atomic) could form an intermetallic having a maximum of 5.07 vol% of MnSn.

The total amount of intermetallics of the claimed materials would meet the limitation of being less than 10 vol% since the maximum amounts of the claimed intermetallic materials would be 8.26 vol % or less.

Regarding claim 8, Takayama'549 teaches that non-metallic particles may be contained in the contact including oxides in amounts as low as 0.2 and up to 1.9 wt % which would fall within Applicant's claimed range for the non-metallic particles (col. 5, Table 1, No. 20-26).

Art Unit: 1775

Regarding claim 9, Takayama'549 teaches that Mo, Co, Fe may be dispersed in an amount within the range claimed by Applicant (col. 7, Table 2, No. 8-10 and 14).

Regarding claim 10, Takayama'549 teaches that graphite may be contained in an amount less than 1 wt% (col. 5, Table 1, No 14-15).

Regarding claim 12, Takayama'549 teaches that the contact contain roughly 10% Sn and 5% Pb (col. 7, Table 2, No 1-14).

Claims 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama'549 et al (US 5,948,549)

Regarding claim 13, Takayama'549 teaches what is set forth above but teaches an Sn content of up to 10 wt% as opposed to the claimed range of 12-16 wt%. However, absent a teaching of the criticality of the Sn content being at least 12 wt% it would not provide a patentable distinction since it would have been within the purview of one of ordinary skill in the art to recognize that contents of some materials in amounts other than what is explicitly exemplified in the reference may be suitable for use in the contact with a reasonable expectation of success. Specific claimed alloy, whose compositions are in such close proportions to those in the prior art that, prima facie one skilled in the art would have expected them to have the same properties, must be considered to have been obvious from known alloys, *Titanium Metals Corporation of America V. Banner*, 227 USPQ 773.

Regarding the limitation that a Cu-Sn compound phase is dispersedly precipitated in the structure thereof, Takayama'549 specifically recites that a Cu-Sn

Art Unit: 1775

compound alloy is added when forming the contact material and as such, one would reasonably expect precipitated Cu-Sn structures to be contained within the contact.

Regarding claims 14 and 19, Takayama'549 teaches that other elements such as Mn, Be and Ag may be added to the contact material (col. 16, ln. 17-60), although it is silent to the addition of lubricating particles such as those claimed. However, the use of solid lubricating particles in copper sintered contact materials is known and conventionally practiced in the art. It would have been obvious to one of ordinary skill in the art to have used known additives such as solid lubricants in the contact material order to improved the overall resistance to seizure of the sintered contact.

Regarding claim 15, Takayama'549 is silent to the sintered contact being a double-layered contact however, sintered double-layered contacts are structure that are well known in the art. Absent a teaching of the criticality of the contact being a double-layered contact, it would not provide a patentable distinction over the prior art since it would have been within the level of one of ordinary skill in the art to have formed the contact of Takayama'549 into any known contact structure, including a double-layered contact, with a reasonable expectation of success.

Regarding claim 16, Takayama'549 teaches that P is preferably contained in an amount of 0.1 to 1.0 wt% (col. 8, ln. 1-8). Takayama'549 further teaches that other elements such as Cr, Si, Al and Ti may be added as well (col. 10, ln. 1 – col. 10, ln. 25).

Regarding claim 17, the non-metallic particles disclosed by Takayama'549 would restrain shrinkage of the sintered layer just as much as the non-metallic particles claimed by Applicant.

Art Unit: 1775

Regarding claim 18, Takayama'549 teaches the addition of CuSn containing greater than 30 wt% Sn (col. 14, ln. 44-61). Takayama'549 also teaches the addition of Sn primary powder (col. 11, Table 4, No 18-25). It would have been obvious to have used both the High Sn containing copper and primary Sn powder since Takayama'549 teaches both are suitable for use.

Regarding claims 20-21, Takayama'549 teaches that the sintered contact may contain non-metallic particles such as graphite, oxides, carbides and nitrides (col. 4, ln. 43-48). Takayama'549 is silent to teaching the total volume percent of the carbides and nitrides which may be added. However, given the teaching of the amount of non-metallic particles being from as low as 0.2 and up to 1.9 wt% (col. 5, Table 1, No. 14-26), it would have been obvious to one of ordinary skill in the art to have added carbides and/or nitrides in a similar amount. Although Takayama'549 teaches the amounts of materials in terms of their weight % as opposed to the claimed volume %, it is the position of the Examiner that the ranges would overlap.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama'549 et al (US 5,948,549) as evidenced by Takayama'775 (US 6,015,775).

Takayama'549 teaches a copper based sintered contact material containing a variety of materials including graphite; however it is silent to the particle size of the graphite materials. Takayama'775 teaches a copper based sintered contact material (col. 4, ln. 15-23) which may contain solid lubricant particles such as graphite (col. 3, ln. 16-47). Takayama'775 further teaches that the particle size of the solid lubricant

Art Unit: 1775

particles may be between 100 and 3000  $\mu\text{m}$  (col. 3, ln. 17-29). Although Takayama'775 teaches that the solid lubricants are intended to protrude from the contact surface in order to provide a self-lubricating sintered sliding member whereas Takayama'549 is silent to the positioning of the particles, Takayama'775 is merely being provided as evidence that the use of solid lubricant particles having sizes within the range claimed is known in the art.

In response to the issue whether the reference is nonanalogous art, it has been held that the determination that a reference is from a nonanalogous art is twofold. First, one decides if the reference is within the field of the inventor's endeavor. If it is not, one proceeds to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved, *In re Wood*, 202 USPQ 171, 174. In the instant case, both Takayama'549 and Takayama'775 are generally drawn to copper based sintered contact materials containing solid lubricant particles. Absent a teaching of the criticality of the particles being within the range claimed by Applicant, it does not provide a patentable distinction over the prior art since the use of solid particles having a size of less than 200  $\mu\text{m}$  is known and would have been an obvious design choice to one of ordinary skill in the art.

### ***Response to Arguments***

Applicant's arguments filed 1-18-06 have been fully considered but they are not persuasive.



Art Unit: 1775

Applicant argues that Takayama'549 fails to disclose, teach or suggest the total amount of intermetallics compounds being equal to 0.1 to 10% by volume. Applicant further states that since the Action conceded that 'Takayama'549 is silent as to the volume% of intermetallic in the contact', that the 102 rejection of the claims is rendered ineffective.

However, as was set forth in the rejection above, since Takayama'549 teaches the same starting materials in similar amounts as that which is claimed in a similar powder metallurgy method to form the sintered copper contact as that taught by Applicant, one would have expected that the intermetallics of the claimed elements would have inherently formed. As such, even though Takayama'549 does not explicitly recite the formation of intermetallics, the claims are still anticipated under 35 USC 102.

Applicant also states that the Examiner has conceded that it is not certain the recited elements of Takayama'549 would form into intermetallics and the disclosure provide no evidence that the elements would form into intermetallics. However, the Examiner merely stated that it is not certain that all of the recited elements would form into intermetallics, i.e. the recited volume % for samples 9 and 10 in table 2 are maximum values whereas the true intermetallic content would likely be somewhat less than the maximum value recited.

Applicant argues that because Takayama'549 fails to disclose, teach or suggest each and every limitation of claim 6, a prima facie anticipation rejection has not be established. However, as was recited above, the limitation not explicitly recited by

Art Unit: 1775

Takayama'549 is inherently described and as such the prima facie case for anticipation has been established.

Applicant argues the remaining claims are allowable since Takayama'549 does not teach all of the limitations recited in claim 6. However, for the reasons set forth above, claim 6 is still viewed as being anticipated by Takayama'549. As such, Applicant's assertion all of the claims are allowable is not persuasive.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 1775


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jason Savage  
2-1-06



**JENNIFER MCNEIL**  
**PRIMARY EXAMINER**  
2/2/06